APACHE-SITGREAVES
National Forests

# Land Management Plan

# Monitoring & Evaluation Report

## Fiscal Years 2000-2001

# Apache-Sitgreaves National Forests
# Land Management Plan
# Monitoring and Evaluation Report
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## Contents

# FOREST SUPERVISOR CERTIFICATION

I have reviewed this annual Forest Plan Monitoring and Evaluation Report for Fiscal Years 2000-2001. The report provides monitoring information and addresses monitoring questions as identified in the Apache-Sitgreaves "Monitoring Action Plan" (MAP). The Action Plan's purpose is to implement Chapter Five (Monitoring Plan) of the Forests Land Management Plan (FLMP). The monitoring plan and monitoring activities conducted by the Forests are based on the National Forest Management Act (NFMA) Regulation and Forest Service Manual (FSM) guidance. I have determined that the Forest Land Management Plan remains sufficient to guide the Apache-Sitgreaves National Forests (A-S NFs) plan implementation activities over the next fiscal year. A Plan amendment is under development for restricting cross country travel by wheeled motorized vehicles. Other Plan amendments may be needed and will be developed, as appropriate, and implemented after appropriate analysis, public participation, and comment.

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JOHN C. BEDELL Date
Forest Supervisor

# INTRODUCTION

The Apache-Sitgreaves National Forests encompass two million acres of magnificent mountain country in east-central Arizona (vicinity map, Appendix A). This report documents implementation, evaluation, and validation monitoring of the Apache-Sitgreaves National Forests Land Management Plan (FLMP) as it is currently amended. A brief description of all current FLMP amendments is included in Appendix B. The forest plan contains a monitoring plan that has been adjusted in a Monitoring Action Plan (MAP) Chapter 5 that prioritizes monitoring efforts according to the budgets available to the Forests. A description of the Monitoring Action Plan (MAP) items is included in Appendix C. Previous monitoring and evaluation reports have followed the numerical sequence of monitoring plan action items. This report has been restructured to conform to the Forest Service Natural Resource Agenda (NRA) and the Southwest Region's customer driven work emphasis (Company's Coming) priorities. This document organization should aid the public and agency personnel take a better look at the Forests and their administration.

The monitoring accomplished in FY 2000-2001 comes from many sources including project monitoring from National Environmental Policy Act (NEPA) documents, biological opinions, general ranger district reviews, and day to day administration of the forests' activities. The monitoring includes *implementation monitoring* that examines if plan guidance was followed; *effectiveness monitoring* that checks to see if projects had their desired outcome; and *validation monitoring* that examines whether the management activities are based on correct assumptions. All of these levels of monitoring occurred during these two years.

The ultimate purpose of this report is to evaluate management of the Forests. The actual monitoring data are not included in detail but are summarized for evaluation purposes. Documentation of the background data are available at district offices across the Forests.

# SUMMARY

Monitoring of forest plan implementation on the Apache-Sitgreaves National Forests proceeded within funding constraints for FY 2000-2001. Forest workers at all levels aggressively improved watershed conditions, bettered ecosystem conditions, provided for recreation opportunities, and managed roads and facilities to achieve desired future conditions. Funding constraints remain the greatest obstacle to monitoring activities.

# Watershed Restoration

Soil, water, and air resources represent the basic environmental capital that support the rest of the environment. These resources taken together with the aquatic and riparian ecological communities comprise the monitoring elements described in this section. The highest priority for administration of the Forest was the alignment of grazing permits with environmental needs. From 1995 through 1999 the Forest analyzed 1,406,000 acres of grazing allotments for a number of environmental factors that include watershed condition, riparian ecological status, and stream proper functioning condition (MAP item #14). The Forests completed an additional 161,796 acres of grazing analysis in FY 2000 and 80,185 acres in 2001 for a total of 1,647,981 acres completed since 1995. Stream habitat surveys were included in the analysis as appropriate. The use of the GAWS inventory system does not appear to be appropriate under all circumstances. That system indicates that a greater amount of riffles should result from management. As streams locally become more stable and develop overhanging banks, the ripple component decreases. This fact has been previously identified in validation monitoring on the West Fork grazing allotment. On 2/15/2002, the Final Project Report, vol. 1 & 2, of the West Fork Allotment Riparian Monitoring Study 1993-1999, was issued by the USDA-FS, Rocky Mountain Research Station, RWU – 4302, Flagstaff, AZ. The Table of Contents and Executive Summary of this report (vol. 1) are included as Appendix D.

Prioritizing of allotments centered on those with riparian and aquatic species having protection under the Endangered Species Act. During FY 2000-2001, a total of 12 grazing allotments (MAP item item #14) had analysis and NEPA documents prepared. Forest Plan objectives are being met on schedule. Reductions in livestock numbers collectively indicate that some allotments have had very large percentage reductions and others have had relatively small changes. Administration of the grazing permits (MAP item #14) received continued close monitoring to ensure that the direct affects of grazing did not impact streams or threatened and endangered (T&E) species. Pastures with such T&E species had riparian areas fenced or cattle excluded from them during critical periods in the vegetative species life cycle. During FY 2000-2001, there were at least 20 allotments in non-use or not stocked status. A number of grazing allotments were given reduced stocking thru memorandums of understanding (MOUs).

Utilization standards continue to receive close monitoring on A-S NFs allotments. Site specific checks of utilization (MAP item #14) were used as a basis for moving cattle through their pasture rotations. This resulted in some herds completing their use of forage earlier than that given in the terms of the annual operating plan. Precipitation was variable throughout the grazing season and several mild winters allowed dispersal of wild ungulates over a wide area with fewer conflicts between them and livestock, with several exceptions.

The collective result of these factors was a large scale improvement in watershed and vegetation conditions and reduced risk to T&E species.

The ecological status of riparian systems continues favorably for the most part in its trend (MAP item #28). Current riparian conditions show an increasing trend of vegetation succession on stream banks. There were some intense summer thunderstorms but very little damage occurred to fish bearing streams. The recovery of these streams continues in large part, however, elk have had significant impacts on willows in Nutrioso Creek and the West Fork of the Little Colorado

River. In spite of this, these systems have not yet had an episode of destabilized stream bank occurrence. At the same time, the diversity of the woody riparian vegetation is at risk in some locales.

Collective review of riparian conditions indicates that Forest Plan standards and guidelines are being applied to all new grazing allotment management plans and annual operating plans. Application of this direction resulted in accelerated achievement of desired riparian conditions in most situations. Direct watershed projects (MAP item #27) were spread across the forest and amounted to 900 acres during FY 2000-2001.

Monitoring of water quality was conducted in cooperation with Arizona Department of Environmental Quality (AZ-DEQ). The bi-annual report of this monitoring was last released by AZ-DEQ in June, 2000 and the next report is due in 2002. Monitoring is restricted to streams that are classified as non-attainment by the AZ-DEQ. Eight streams are monitored for their turbidity by both agencies (Blue River, Little Colorado River, Hayground Creek, Stinky Creek, Snake Creek, Beaver Creek, West Fork Black River, and Lee Valley Creek). Macroinvertebrate joint sampling began in FY 2001 and is expected to continue for a total of five years. Approximately 50 miles of stream were inventoried for proper functioning condition (PFC) during FY 2000-2001. Riparian and aquatic surveys are an important part of those inventories. Project evaluations indicate that most of the riparian conditions are improving, but those with T&E species typically require acceleration of trend to optimize conditions for listed species. Other water quality monitoring focused on implementation of Best Management Practices (BMPs) in accordance with the Clean Water Act (CWA) resulting in attainment of State water quality standards within their application areas.

In summary, watershed conditions are generally in an upward trend on the Forests and current management practices reinforce that trend for the most part.

# Ecosystem Management

Ecosystem management includes many activities that move existing conditions toward desired conditions. Current ecological conditions indicate that forest cover in commercial and non-commercial forest types presents a large scale problem. Some site specific conflicts between wild ungulates and livestock reduced forage cover ratios (MAP item #11). There is also a strong correlation between tree crown closure and loss of forage production for wildlife and livestock. Treatment of this problem has been limited by the adverse economics of harvesting small diameter timber, though some notable improvements in treatment options occurred during FY 2000-2001. The scale of treatment ideally needed still exceeds the funding available to deal with anything but the highest priorities thru forest management activities. Specific vegetative manipulation activities utilizing timber sales are summarized on the next page:

## TIMBER SALES – A-S NFs

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| FY 2000 | Total Volume | | |
|---|---|---|---|
| Personal use sales: | 7,131 ccf ccf | | |
| Small commercial sales: | 4,157 ccf | | |
| Commercial sales: | 27,251 ccf (detailed below) | | |
| | Total Vol. | Sawtimber | Roundwood |
| Blue Ridge Demonstration | 1,217 ccf | 66 ccf | 1,151 ccf (embedded contract) *1/* |
| Sunny Park | 5,616 ccf | 2,490 ccf | 3,126 ccf (offered -- not sold) *2/* |
| Phelps | 4,480 ccf | 1,303 ccf | 3,177 ccf (sold) |
| Sponsellor | 7,639 ccf | 1,690 ccf | 5,949 ccf (offered -- not sold) *2/* |
| Elk II | 4,113 ccf | 1,997 ccf | 2,116 ccf (sold) |
| Hall | 4,186 ccf | 1,643 ccf | 2,543 ccf (offered -- not sold) *2/* |
| Total | 27,251 ccf | | |

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| FY 2001 | Total Volume | | |
|---|---|---|---|
| Personal use sales: | 6,902 ccf | | |
| Small commercial sales: | 3,200 ccf | | |
| Commercial sales: | 19,752 ccf (detailed below) | | |
| | Total Vol. | Sawtimber | Roundwood |
| OD Ridge II | 979 ccf | 979 ccf | 0 ccf (sold) |
| Pinetop Springs | 10,051 ccf | 3,539 ccf | 6,512 ccf (embedded contract) *1/* |
| Wiggins II | 1,131 ccf | 102 ccf | 1,029 ccf (sold) |
| Cottonwood Stewardship | 1,023 ccf | 643 ccf | 380 ccf (embedded contract) *1/* |
| Gentry II | 4,657 ccf | 3,764 ccf | 893 ccf (offered -- not sold) *2/* |
| Brookbank II | 1,366 ccf | 684 ccf | 682 ccf (offered -- not sold) *2/* |
| Ricochet | 545 ccf | 0 ccf | 545 ccf (sold) |
| Total | 19,752 ccf | | |

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***1/ Embedded contract*** is a small timber sale contract made part of a service contract (normally used for pre-commercial thinning contracts) and used when the timber sale is low value material that appraises deficit as a normal timber sale. The mechanism to accomplish the resource objectives then becomes a service contract in which USFS pays for the cost of removing the trees (when funds are available for such projects), and lacking the authority to exchange goods (value of the timber) for services (removal of the trees for resource objectives). USFS also charges the contractor the minimum amount for the value of the merchantable material. The contractors in determining their bid for the project, consider the value of the material which ideally results in reduced cost to the government.

***2/ Offered – not sold*** volume is often sold later thru redesign or modification of the original sale package into smaller blocks or as demand increases.

During FY 2000, the tree density issue was also addressed by mechanical treatments and timber stand improvement (TSI) activities on 1,490 acres with appropriated funds and on 1,976 acres with KV deposits from timber sales. However, this is not a sufficient area to achieve long term improvement in desired conditions. In contrast, 518 acres of under stocked areas were reforested using KV deposits from timber sales during FY 2000.

Vegetative seral stages are evaluated for all projects where this is appropriate. The diversity of wildlife habitat indices indicate that a great deal of work is needed to accelerate the development of mature and late successional habitat from acres that are currently dominated by sapling and small pole size trees that over stock the sites. This problem occurs across northern Arizona and New Mexico. Where treatment is applied, considerable progress is made towards achieving desired conditions, particularly with respect to increases in tree diameter. This has been demonstrated with virtually all age classes and vigor categories.

The **wildland urban interface (WUI)** has the highest priority for vegetative treatment. Work in these WUI areas has progressed at a remarkable rate as detailed in the following tables. A large number of tools have been used to work towards achieving desired conditions. Much of this work has been cooperative with partners. Commercial timber sales have received the most opposition from critics but remain the most viable tool for getting forest cover types prepared for other treatments such as prescribed fire.

The tables that follow describe these forest health and WUI projects in greater detail.

## Alpine Ranger District
## Forest Health and Interface Projects
## FY2000

| Proj. No. | Project Name | Project Type | Location | Funding Source | Objective | Forest Health Acres | Urban Inter-face Acres |
|---|---|---|---|---|---|---|---|
| 1 | Little Multiproduct Sale | Wildlife habitat & forest health | Alpine RD, adjacent to private lands | NFS | Improve Vegetation Structural Stage Distribution for Northern Goshawk & improve tree vigor | | 1020 |
| 2 | Draw Timber Sale | Forest Health | Alpine RD | NFS | Reduce tree density & disease control | 94 | |
| 3 | Cat DMToe Control Project | Forest Health | Alpine RD | NFS | Disease control | 11 | |
| 4 | Kerry Flat DMToe Control<br>TSI contract awarded | Forest Health | Alpine RD, near private lands | RT & BD | Disease control & fuels reduction | | 356 |
| 5 | Kettle TSI contract awarded | Forest Health | Alpine RD | CWKV & RT | Reduce understory tree density, ladder fuels, & disease control | 227 | |
| 6 | Cotton Flat TSI | | Alpine RD, adjacent to | | Reduce tree density, increase | | |

| Proj. No. | Project Name | Project Type | Location | Funding Source | Objective | Forest Health Acres | Urban Inter-face Acres |
|---|---|---|---|---|---|---|---|
| | (Houselog/Pole) sale | Forest Health | adjacent to private lands | NFS | density, increase diameter growth, reduce insect attack risk | | 50 |
| 7 | Hannagan Helibase Salvage and Sanitation contract | Urban Intrerface & Forest Health | Alpine RD, Fire Admin. Site near major recreation developments | NFS | Remove hazardous/diseased trees for safe Fire Helibase facilities mtnc. & operation; plus live & dead fuels reduction. | | 60 |
| 8 | Alpine District Campgrounds Hazard Salvage | Urban Interface | Alpine RD, all developed recreation sites | NFS | Remove hazardous trees for visitor safety, and reduced live & standing dead fuels | | 60 |
| 9 | Draw Aspen Fence | Forest Health | Alpine RD | CWKV | Protect Aspen regeneration from mortality due to elk browsing | 9 | |
| 10 | Isabelle Site Prep.Burn | Forest Health | Alpine RD | CWKV | Natural tree regeneration | 86 | |
| 11 | East Castle Rx Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | 111 | |
| 12 | Isabelle Rx Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | 632 | |
| 13 | Bearcat Rx Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | 225 | |
| 14 | Boggy Rx Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | 1257 | |
| 15 | Kerry Flat Pile Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | | 356 |
| 16 | Kettle Handpile & Burn | Forest Health | Alpine RD | CWKV | Reduce Hazardous Fuels | 32 | |
| 17 | Kettle Pile Burn | Forest Health | Alpine RD | BD | Reduce Hazardous Fuels | 240 | |
| 18 | Hagen Pile Burn | Forest Health | Alpine RD | BD | Reduce Hazardous Fuels | 28 | |
| 19 | Isabelle Pile Burn | Forest Health | Alpine RD | BD | Reduce Hazardous Fuels | 28 | |
| | | | | | | | |

| Proj. No. | Project Name | Project Type | Location | Funding Source | Objective | Forest Health Acres | Urban Inter-face Acres |
|---|---|---|---|---|---|---|---|
| | **TOTALS** | | | | | **2980** | **1902** |

## Black Mesa Ranger District

## Forest Health and Interface Projects

## FY2000

| Project Number | Project Name | Project Type | Location | Funding Source | Objective | Forest Health Acres | Urban Interface Acres | Total Acres |
|---|---|---|---|---|---|---|---|---|
| 1 | Cottonwood Stewardship | Commercial/Pre-commercial Thinning | Black Mesa | VWEL | Riparian restoration/exchanging goods for services | 179 | | |
| 2 | Bruno Tank Thinning | Pre-commercial Thin | Black Mesa | HFPN | Reduce wildfire risk and improve forest health | 306 | 306 | |
| | | | | | | | | |
| **Totals** | | | | | | **485** | **306** | **485** |

**All acres thinned in Bruno were completed for Wildland Urban Interface as well as Forest Health so the acres were counted in both columns

## Springerville Ranger District
## Forest Health and Interface Projects

## FY2000

| Project Number | Project Name | Project Type | Location | Funding Source | Objective | Forest Health Acres | Urban Interface Acres | Total Acres |
|---|---|---|---|---|---|---|---|---|
| 1 | Mac Spring Thinning | Forest Health | Springerville | CWKV | < Tree Density & Improve For Health | 33 | | |
| 2 | Point Thinning | Forest Health | Springerville | CWKV | < Tree Density & Improve For Health | 17 | | |
| 3 | Hay Lake 1 Thinning | Forest Health | Springerville | CWKV | < Tree Density & Improve For Health | 16 | | |
| 4 | Drumstick Tank Thinning | Forest Health | Springerville | CWKV | < Tree Density & Improve For Health | 20 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | Health | | |
| 5 | Seed Cut 1 Thinning | Forest Health | Springerville | CWKV | < Tree Density & Improve For Health | 27 | |
| 6 | Slope Thinning | Forest Health | Springerville | CWKV | < Tree Density & Improve For Health | 12 | |
| 7 | North Unit Thinning | Forest Health | Springerville | CWKV | < Tree Density & Improve For Health | 70 | |
| 8 | OD Timber Sale | Forest Health | Springerville | Purchaser | < Tree Density & Improve For Health | 686 | |
| 9 | Burro Multiproduct Sale | Forest Health | Springerville | Purchaser | < Tree Density & Improve For Health | 131 | |
| 10 | Burro Multiproduct Sale | Forest Health | Springerville | Purchaser | Regenerate Std & Improve For Health | 127 | |
| 11 | Burro Multiproduct Sale | Forest Health | Springerville | Purchaser | Improve Big Game Habitat | 34 | |
| 12 | Iris Springs Meadow Restoration | Forest Health | Springerville | HPC/RMEF | Improve Big Game Habitat | 130 | |
| 13 | Phone Line Phase II Meadow Restoration | Forest Health | Springerville | RMEF | Improve Big Game Habitat | 130 | |
| 14 | South Fork Mule Deer Meadow Restor. | Forest Health | Springerville | TAG FUND | Improve Big Game Habitat | 40 | |
| 15 | Sawmill and Wad Spring Meadow Restor. | Forest Health | Springerville | RMEF | Improve Big Game Habitat | 50 | |
| 16 | Duke Spring Meadow Restoration | Forest Health | Springerville | RMEF | Improve Big Game Habitat | 20 | |
| 17 | Loco Pasture Meadow Restoration | Forest Health | Springerville | RMEF | Improve Big Game Habitat | 50 | |
| 18 | Greens Peak Broadcast Burn | Forest Health | Springerville | Coop | Improve Big Game Habitat | 1095 | 200 |
| 19 | Hay Pile Burning | Forest Health | Springerville | BDBD | Hazardous Fuels Reduction | 100 | 100 |
| 20 | Badger Knoll TSI | Interface | Springerville | Fuels | Reduce Tree Density | 50 | 50 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Density | | | |
| 21 | Hideways TSI | Interface | Springerville | Fuels | Reduce Tree Density | 50 | 50 | |
| 22 | Hideways Broadcast Burn | Interface | Springerville | Fuels | Hazardous Fuels Reduction | 300 | 300 | |
| 23 | Campgrounds Hazard Salvage | Interface | Springerville | NFS | Hazardous Fuels Reduction | | 75 | |
| **Totals** | | | | | | **3,188** | **775** | **3,963** |

## Lakeside Ranger District

## Forest Health and Interface Projects
## FY2000

| Project Number | Project Name | Project Type | Location | Funding Source | Objective | Forest Health Acres | Urban Interface Acres | Total Acres |
|---|---|---|---|---|---|---|---|---|
| 1 | Elk II Timber Sale | Commercial Thin | Lakeside | NFS | Reduce Density | 59 | | 59 |
| 2 | Show Low South-Coal Mtn. | TSI-Thin & Pile | Lakeside | NFS | Reduce Density &Fuel Load | | 49 | 49 |
| 3 | | TSI-Thin & Pile | Lakeside | NFS | Reduce Density & Fuel | | 135 | 135 |
| 4 | Show Low South-Morgan Tank | TSI-Thin & Pile | Lakeside | NFS | Reduce Density & Fuel Load | | 74 | 74 |
| 5 | | TSI-Thin & Lop | Lakeside | NFS | Reduce Density & Fuel | | 265 | 265 |
| 6 | Show Low Thin & Chip | Fuelbreak-T & C | Lakeside | NFS,Fuels | Reduce Density & Fuel Load | | 80 | 80 |
| 7 | Blue Ridge Broadcast Burn | Rx Fire | Lakeside | NFS | Reduce Fuel Load | | 588 | 588 |
| 8 | Elk Broadcast Burn | Rx Fire | Lakeside | NFS | Reduce Fuel Load | 337 | | 337 |
| 9 | Lons Broadcast Burn | Rx Fire | Lakeside | NFS | Reduce Fuel Load | | 620 | 620 |
| 10 | Jacques Marsh-Broadcast Burn | Rx Fire | Lakeside | NFS | Improve Wildlife Habitat | | 12 | 12 |
| 11 | Fence-Bagnal Hand Piles | Fuels-Burn | Lakeside | NFS, Fuels | Reduce Fuel Load | | 55 | 55 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 12 | Scattered Hand Piles | Fuels-Burn | Lakeside | NFS, Fuels | Reduce Fuel Load & Dumping | | 5 | 5 |
| 13 | Morgan T.S. Machine Piles | Fuels-Burn | Lakeside | NFS, Fuels | Reduce Fuel Load | | 450 | 450 |
| **Totals** | | | | | | **396** | **2,333** | **2,729** |

## Alpine Ranger District

## Forest Health and Interface Projects

## FY2001

| Project Number | Project Name | Project Type | Location | Funding Source | Objective | Forest Health Acres | Urban Inter-face | Total Acres |
|---|---|---|---|---|---|---|---|---|
| 1 | Kettle PC Tree Thinning | Forest Health | Alpine RD | KV, RTRT | Reduce tree density, increase diameter growth & vigor, disease control - | 227 | | 227 |
| 2 | Kettle TSI Slash Chip/Pile/Lop | Forest Health | Alpine RD | KV, RTRT | Hazardous fuels reduction | 227 | | 227 |
| 3 | Kerry Flat DMControl PC Thinning | Forest Health | Alpine RD | RTRT & BD | Disease control, reduce tree density | 96 | | 96 |
| 4 | Kerry Flat DMC TSI Slash Piling | Urban Interface | Alpine RD | RTRT & BD | Hazardous fuels reduction | | 96 | 96 |
| 5 | Alpine North WUI Tree Thinning (done by USFS fire crew) | Urban Interface | Alpine RD | Fuels Mgmt. | Reduce green ladder fuels, breakup tree canopy/density, disease control | | 20 | 20 |
| 6 | Alpine North WUI Slash Treatment (done by USFS fire crew) | Urban Interface | Alpine RD | Fuels Mgmt. | Hazardous fuels reduction, watershed improvement | | 20 | 20 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 7 | Little Urban WUI Tree Thinning | Urban Interface | Alpine RD | Fuels Mgmt. | Reduce green ladder fuels, breakup tree canopy/density, disease control | | 10 | 10 |
| 8 | Little Urban WUI Slash Treatment | Urban Interface | Alpine RD | Fuels Mgmt. | Hazardous fuels reduction | | 10 | 10 |
| 9 | Hannagan Helibase Hazard Trees and slash treatments | Urban Interface | Alpine RD | NFTM | Remove hazardous/diseased trees for safe fire helibase facilities | | 24 | 24 |
| 10 | Highway180 Hazard Tree Slash Piling | BOTH | Alpine RD | Purchasers | Reduce new fuels along highway edges | | 10 | 10 |
| 11 | Cat DMC TSI Contract Prep/Awarded | Forest Health | Alpine RD | PestMgmt,KV | Disease control, reduce tree density | [94] | | ** |
| 12 | Horton1 TSI Contract Prep/Awarded | BOTH | Alpine RD | KV, RTRT | Disease control, reduce tree density | [166] | | ** |
| 13 | Alpine North WUI Tree Thinning Contract Prep/Awarded | Urban Interface | Alpine RD | Fuels Mgmt. & NFTM. | Reduce green ladder fuels, tree canopy/density, disease control breakup | | [170] | ** |
| 14 | Iasbelle Pile Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | 24 | | |
| 15 | Draw Pile Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | 270 | | |
| 16 | Horton Pile Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | 65 | | |
| 17 | Hagen Pile Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | 20 | | |
| 18 | Kettle Pile Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | 60 | | |
| 19 | Little Pile Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | 5 | | |
| 20 | Cat Pile Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | 5 | | |
| 21 | Alpine Burn Pit | Urban Interface | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | | 120 | |
| 22 | Kettle Rx Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | 194 | | |
| 23 | Isabelle Rx Burn | Forest Health | Alpine RD | KV | Site Prep. Natural Regen. | 77 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 24 | Isabelle Rx Burn | Forest Health | Alpine RD | KV | Wildlife Forage Improvement | 377 | | |
| 25 | Isabelle Rx Burn | Forest Health | Alpine RD | Fuels Mgt. | Reduce Hazardous Fuels | 880 | | |
| | | | | | | | | |
| **Totals** | | | | | | **2,527** | **310** | **2,837** |

Footnote: [ ] These acres will be reported as accomplished when actually cut and slash is treated on the ground in 2002.

## Black Mesa Ranger District

## Forest Health and Interface Projects

## FY2001

| Project Number | Project Name | Project Type | Location | Funding Source | Objective | Forest Health Acres | Urban Interface Acres | Total Acres | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Phelps Thinning & Slash | Pre-commercial Thin | Black Mesa | NFTM | Fuels Reduction, Forest Health | 456 | 456 | | |
| 2 | Ricochet Ranch Thinning & Slash | Pre-commercial Thin | Black Mesa | NFTM | Fuels Reduction, Forest Health | 146 | 146 | | |
| 3 | Clay Springs Thinning & Slash | Pre-commercial Thin | Black Mesa | NFTM | Fuels Reduction, Forest Health | 94 | 94 | | |
| 4 | Canyon Point Thinning & Slash | Pre-commercial Thin | Black Mesa | NFTM/HFPN | Fuels Reduction, Forest Health | 1000 | 1000 | | |
| 5 | West Cottonwood Thinning & Slash | Pre-commercial Thin | Black Mesa | NFTM | Fuels Reduction, Forest Health | 71 | 71 | | |
| | | | | | | | | | |
| **Totals** | | | | | | **1,767** | **1,767** | **1,767** | ** |

**All acres thinned for Wildland Urban Interface and Forest Health so the acres were counted in both columns

## Springerville Ranger District
## Forest Health and Interface Projects
## FY2001

| Project Number | Project Name | Project Type | Location | Funding Source | Objective | Forest Health Acres | Urban Interface Acres | Total Acres |
|---|---|---|---|---|---|---|---|---|
| 1 | South Fork Tank TSI | Forest Health | Springerville | CWKV | Improve forest health & tree vigor | 66 | | |
| 2 | Long Point TSI | Forest Health | Springerville | CWKV | Improve forest health & reduce hazard fuels | 179 | | |
| 3 | Little Slope TSI | Forest Health | Springerville | CWKV | Improve forest health & tree vigor | 5 | | |
| 4 | Greer Lookout TSI | Forest Health | Springerville | CWKV | Improve forest health & reduce hazard fuels | 24 | | |
| 5 | Mistletoe TSI | Forest Health | Springerville | CWKV | Improve forest health & tree vigor | 14 | | |
| 6 | Badger Knoll Fuels Reduction | Urban Interface | Springerville | Fuels | Hazardous fuels reduction | | 226 | |
| 7 | Riley Slope TSI | Forest Health | Springerville | CWKV | Improve forest health & tree vigor | 11 | | |
| 8 | OD Hay TSI | Forest Health | Springerville | CWKV | Improve forest health & reduce hazard fuels | 208 | | |
| 9 | Burro Multiproduct Sale | Forest Health | Springerville | Purchaser | Improve forest health & tree vigor | 360 | | |
| 10 | Burro Multiproduct Sale | Forest Health | Springerville | Purchaser | Improve forest health & regenerate std | 259 | | |
| 11 | Burro Multiproduct Sale | Forest Health | Springerville | Purchaser | Improve forest health | 81 | | |
| 12 | OD Ridge II Timber Sale | Forest Health | Springerville | Purchaser | Improve forest health & tree vigor | 119 | | |
| 13 | OD Ridge II Timber Sale | Forest Health | Springerville | Purchaser | Improve forest health | 60 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 14 | Loco Pasture Winter Range Restoration | Forest Health | Springerville | Wildlife | Improve forest health & winter range | 50 | | |
| 15 | Hay | Pile Burning | 34.02X109.22 | WFPR | Reduce Timber Slash | | 625 | |
| 16 | Badger Knoll | Pile Burning | 34.01X109.28 | WFPR | Fuels Reduction | | 33 | |
| 18 | Benny Pit | Debris Burning | 34.05X109.28 | WFPR | Debris Burning | | 22 | |
| 19 | Hideaways | Pile Burning | 34.09X109.32 | WFPR | Fuels Reduction | | 50 | |
| 20 | Hideaways | Thinning | 34.09X109.32 | WFPR | Fuels Reduction | | 50 | |
| | | | | | | | | |
| **Totals** | | | | | | **1,436** | **1,006** | |
| | | | | | | | | **2,442** |

## Lakeside Ranger District

## Forest Health and Interface Projects

## FY2001

| Project Number | Project Name | Project Type | Location | Funding Source | Objective | Forest Health Acres | Urban Interface Acres | Total Acres |
|---|---|---|---|---|---|---|---|---|
| 1 | Elk Timber Sale | Commercial thin | Lakeside | NFS | Reduce Density | 34 | | 34 |
| 2 | Blue Ridge-5 thin & slash contracts | TSI-thin & chip | Lakeside | CEM | Reduce Density & Fuel Lood | | 647 | 647 |
| 3 | | TSI-thin & chip | Lakeside | CEM | Reduce Density & Fuel Load | | 1,382 | 1,382 |
| 4 | | TSI-thin & lop | Lakeside | CEM | Reduce Density & Fuel | | 2,038 | 2,038 |
| 5 | Blue Ride- Billy Springer | Fuelbreak-T&C | Lakeside | CEM | Reduce Density & Fuel Load | | 48 | 48 |
| 6 | | Fuedbreak-T&P | Lakeside | CEM | Reduce Density & Fuel Load | | 17 | 17 |
| 7 | Show Low South-Deep Tank | Fuelbreak-T&C | Lakeside | CEM | Reduce Density & Fuel Load | | 262 | 262 |
| 8 | | Fuelbreak-T&P | Lakeside | CEM | Reduce Density & Fuel Load | | 166 | 166 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 9 | Show Low South-Fence Piles | Fuels-Chip | Lakeside | NFS,Fuels | Reduce Fuel Load | | 75 | 75 |
| 10 | Show Low South-Force Account | Fuelbreak-T&C | Lakeside | NFS,Fuels | Reduce Density & Fuel Load | | 25 | 25 |
| 11 | Cottonwood IV Reforestation | Plant Trees | Lakeside | NFS,KV | Restore after wildfire | 62 | | 62 |
| 12 | Fuelwood Project-Fence Tank | Fuelwood Sales | Lakeside | NFS | Reduce Density | | 20 | 20 |
| 13 | Elk Broadcast Burn | Rx Fire | Lakeside | NFS | Reduce Fuel Load | 580 | | 580 |
| 14 | Blue Ridge-Broadcast Burn | Rx Fire | Lakeside | CEM | Reduce Fuel Load | | 80 | 80 |
| 15 | Jacques Marsh-Broadcast Burn | Rx Fire | Lakeside | NFS | Improve Wildlife Habitat | | 25 | 25 |
| 16 | Show Low South Hand Piles | Fuels-Burn | Lakeside | NFS,Fuels | Reduce Fuel Load | | 211 | 211 |
| 17 | Timberland Acres Hand Piles | Fuels-Burn | Lakeside | NFS,Fuels | Reduce Fuel Load | | 28 | 28 |
| 18 | Scattered Hand Piles | Fuels-Burn | Lakeside | NFS,Fuels | Reduce Fuel Load & Dumping | | 9 | 9 |
| 19 | Whiton T.S. Machine Piles | Fuels-Burn | Lakeside | NFS,Fuels | Reduce Fuel Load | | 35 | 35 |
| 20 | Morgan T.S. Machine Piles | Fuels-Burn | Lakeside | NFS,Fuels | Reduce Fuel Load | | 20 | 20 |
| 21 | Elk II T.S. Machine Piles | Fuels-Burn | Lakeside | NFS,Fuels | Reduce Fuel Load | 38 | | 38 |
| | | | | | | | | |
| **Totals** | | | | | | **714** | **5,088** | **5,802** |

Ecosystem condition and trend (MAP item #15) are important monitoring criteria. Substantial inventory of ecosystem condition and trend resulted from surveys of range conditions. These became a driving force in the earlier mentioned livestock adjustments. A second source of inventory results from the ecosystem management area assessments. Survey of those ecosystems is proceeding with the analysis for projects. As already noted under Watershed Restoration, approximately 50 miles of stream were inventoried for proper functioning condition (PFC) during FY 2000-2001. Riparian and aquatic surveys are an important part of those inventories. Project evaluations indicate that most of the riparian conditions are improving, but those with T&E species typically require acceleration of trend to optimize conditions for listed species. In addition, a total of 900 acres of soil and watershed improvement projects were completed during FY 2000-2001.

Forest management practices are benefiting T&E species and with respect to riparian and aquatic

species, management enhancements will improve watershed conditions and their habitats. The possible exception to this would be increasing wild ungulate populations that continue to create site specific impacts to woody species habitat in riparian corridors. Hopefully monitoring will continue to verify if the improvements occurring will exceed the scale of any natural disturbances that would put populations at risk.

The ingrowth of forest vegetation creates imbalances of forage and cover ratios as well as micro-habitat conditions that put forest stability and habitat for species such as Northern Goshawk at risk. This trend cannot be overcome with the existing level of forest treatment as portrayed in the project tables listed above. The forest MIS report establishes a point in time evaluation of Goshawk populations and estimates of habitat. This is included as Appendix I.

MAP item 15 relies heavily or RO3 WILD analysis. Comments from all districts indicate that this computer based analysis program may not be sufficiently sensitive at the project level to ensure the intent of forest plan direction is met. As applications of NRIS Terra are implemented, they will be evaluated for applicability.

Regeneration of forested land after timber harvest is a legal requirement of the National Forest Management Act (NFMA). The following monitoring activities (MAP item #18) were accomplished to certify that regeneration has been properly completed within the required five year time frame.

Monitoring actions:

448 acres of natural regeneration were certified as stocked in FY2000 and 149 acres in FY2001.

41 acres of plantation survival surveys were completed in FY2000 and 240 acres in FY2001.

Annual review of 5-year regeneration requirement in RMRIS (only 187 acres of 26,931 acres of final harvests older than 5 years are not yet certified as stocked, less than one percent).

NFMA Findings:

Regeneration activities are being scheduled appropriately. Acres not successfully regenerated within 5 years are less than 1%.

The previously mentioned problems with over stocked forests are improved through treatment with pre-commercial thinning in many instances. While the scale of such actions is too small to quickly restore natural ecosystem function, the work accomplished meets Forest Plan direction. Monitoring (MAP item #19) was undertaken on selected projects to ensure compliance with standards and guidelines.

Monitoring actions:

1,210 acres of TSI were certified as meeting prescription in FY2000 and 1,996 acres in FY2001.

Findings:

TSI activities are in compliance with FLMP direction and stocking levels.

The implementation of silvicultural practices (MAP item #20) is frequently monitored and is

subject to intense quality control by second level of review in many cases. All timber harvest operations of live commercial forests received silvicultural prescriptions by certified silviculturists. The second level of quality control applied by Forest Supervisor's Office personnel is enumerated below and the findings of these reviews are summarized.

Monitoring actions:

Field review of the Mineral Project proposal (D6) 11/18/99 and 12/8/99.

Field review of the Little Timber Sale prescription for goshawk and Mexican spotted owl habitat requirements 3/22/00.

Field review of Mineral Project pre-settlement restoration test mark plots 5/12/00.

Field review of the Cottonwood Pilot Project implementation (D2) with the Region 3 Silviculturist 6/6/00.

Field review of the Little and Mineral project areas with the Region 3 Silviculturist 6/7/00.

Field review of the Cottonwood Fire reforestation areas (D7) with the Region 3 Silviculturist and Region 3 Forest Health Specialist 8/9/00.

Field review of the proposed thinning and prescribed fire project at Sheep Saddle (D3) with the District Biologist 10/5/00.

Field review of the Burro Timber Sale (D6) in conjunction with the re-certification of the District Silviculturist 10/31/00.

Field review of timber stand improvement (TSI) thinning units (D1) and slash treatment options with District Timber Representatives and the Forest Hydrologist and Soil Scientist 4/12/01.

Field review of the Nutrioso Wildland Urban Interface (WUI) Project proposal with the District Timber Staff and Northern Arizona University Specialists 7/16/01.

Field review of the Mineral Project treatment proposals with the Forest Supervisor and Northern Arizona University Specialists 7/17/01.

Annual harvest by method of cut is reported annually in the SILVA report. The FY 2000-2001 SILVA reports are on file at the Forest Supervisor's office.

Monitoring actions:

NEPA decisions involving vegetative treatments were reviewed for compliance with NFMA requirements.

Findings:

Harvest types and treatments comply with Forest Plan direction. The appropriateness of prescribed treatments are certified as NFMA compliant as part of the NEPA decisions.

The volume and productivity class of forested lands are tracked through timber management data bases. The data from these data bases can be used to track these factors over time. The parameters modeled in the original forest plan before amendments lack sufficient similarity to connect them with statistical inference to the existing guidelines. This is due in part to different procedures for sampling.

Monitoring actions:

Harvest activities are entered into the Rocky Mountain Resource Information System (RMRIS) and the Periodic Timber Sale Accomplishment Report (PTSAR).

Findings:

Board foot / cubic foot ratios and volume per acre yields are not projected in the Forest Plan. Harvest Activities are entered in RMRIS yearly. Contracts and Permits are entered as soon as feasible into the Sales Tracking And Reporting System (STARS), which then show up as volume accounted for in PTSAR.

Monitoring of forest openings as a result of timber harvest has diminished in its importance since amendments have focused harvest on the production of habitat for the Northern goshawk and the Mexican spotted owl. Timber management has shifted from even aged silviculture to unevenaged management. While size limits on openings are a reality of regulations, they seldom come into play with current harvest practices. Monitoring the size of forest openings (MAP item #22) has been detailed below and the resulting findings have been summarized. In 2000 and 2001, no NEPA documents specified amendments to forest plan standards and guidelines.

Monitoring actions:

Annual review of RMRIS database for input of harvest, regeneration, and cultural treatment activities. Activities reviewed for appropriate suitability class and opening sizes, and annual harvest by method of cut were reviewed as part of NEPA decisions. Harvest openings are created primarily by group selection harvests of 4 acres or less. One 15 acre stand of aspen was clear cut for regeneration in FY 2000.

Findings:

Opening sizes are in compliance with the FLMP. The RMRIS query showed one harvest opening (patch, strip or stand clear cuts) was created in FY 2000. Openings created through group selection are generally 4 acres or less.

Monitoring shows that the harvest rate of timber (MAP item #23) falls significantly below that needed to obtain a desired forest condition that has more favorable forage cover ratios. Because the sale of all types of wood is highly regulated, good records exist on the amount and type of forest products sold.

Monitoring actions:

Review of 2400-17's (Report of Timber Sale) & PTSAR for the ten year period from 1992-2001. The 2400-17's show the larger sawtimber and multi-product sales for which an appraisal is done; PTSAR shows all volume, including fuel wood and miscellaneous sales.

Findings:

2400-17's show a ten year sold volume average of 20,497 MBF/year, or 17% of Forest Plan ASQ for sawtimber and pulp. PTSAR shows ten year sold volume average of 32,259 MBF/year, or 26% of Forest Plan ASQ for sawtimber, pulp, and fuel wood.

Monitoring actions:

Review of Annual Free Use Reports and PTSAR personal use volume, which is mostly fuelwood (MAP item #24), for the period from FY 2000-2001,

Findings:

FY 2001 Annual Free Use Report shows approximately 2,660 cords of fuel wood offered as free use. FY 2000 data is missing. FY 2000 PTSAR personal use volume shows approximately 15,456 cords used, and FY 2001 shows 14,254 cords used, both approximately 50% of the demand estimated in the Forest Plan EIS.

Timber suitability determinations (MAP item #26) are made at the Forest Plan level and verified during projects. This is tracked in a data base (RMRIS) to ensure that harvest is limited to appropriate types of land.

Monitoring actions:

Determine suitability.

Findings:

Suitability determinations are in compliance with Plan direction. NFMA certifications in conjunction with NEPA decisions show suitability codes to be in agreement with cover type, slope class, productivity class, ownership, and land use.

Monitoring of forest insect and disease effects (MAP item #35) were undertaken in FY 2000-2001.

Monitoring actions:

The Arizona Zone Entomology and Pathology office completed the annual insect and disease detection flights in July and August.

Findings:

A general increase in bark beetle activity was observed, with increases in aspen defoliation, and decreases in western spruce budworm activity. Spruce aphid populations have dropped from previous years. Trees heavily defoliated on Mt. Baldy over the past several years by a looper insect are showing increased mortality.

A summary of forest health trends in the region and specific information about individual insects and diseases is available on the internet at: www.for.nau.edu/usfs/r3_fpm

# Recreation

Existing developed recreation sites (MAP item #1) accommodate most demand except during peak use periods associated with holidays when camp sites are limited. During FY 2001, a

Recreation Use Survey was conducted across the forests and tabulated results are included in Appendix J. The comments made by recreationists are overwhelmingly favorable on the quality of experience available. Resource damage is not common even though a few sites are at or beyond their useful life.

Undeveloped sites also receive considerable use throughout the year. Their current level of management prevents unacceptable resource impacts for the most part. Restrictions are used to limit the impacts of heavy use. Surveys of recreationists reveal that high satisfaction levels dominate the user population. Occasional conflicts with livestock, other recreationists, or weather factors reduce user satisfaction at times.

The satisfaction associated with trails is generally good across the forests. In areas near population centers, volunteer help results in greatly increased user satisfaction. The use by mountain bikes is accelerating greatly while horseback use is declining. Maps needed for mountain bikers are available on the A-S NFs web site: www.fs.fed.us/r3/asnf. During both FY 2000 and 2001, the Valle Redondo Fat Tire Festival was held and while lightly attended, it was well organized and showed that the Round Valley communities have the capacity to stage such events. The Forests have the potential to be a large mountain bike recreation center due to the variety of trail difficulty and the outstanding scenery present across the Forests.

Off highway vehicle (OHV) compliance has been good in most areas with minimal impacts requiring few rehabilitation efforts and closures. Saffel Canyon was a notable exception with a major cooperative rehabilitation effort concluded with State of Arizona funding in August, 2001, and a Grand Opening celebration for a new designated OHV trail.

Much effort has been applied to site design of developed recreation areas to ensure user satisfaction. The table that follows displays the FY 2000-2001 recreation facility projects.

## FY 2000-2001 Recreation Facility Projects

| Project Name | Recreation Facility Types | Funding Source | Accessibility | Project Status |
|---|---|---|---|---|
| Saffel Canyon OHV, Day Use Area | Ramadas, restrooms, picnic, kiosk, parking area | State of Arizona, Heritage OHV | Yes | Completed 2001 |
| | | | | |
| Fool Hollow Day Use | Boat/Courtesy Dock | State Lake Improvement Fund | Yes | Completed 2001 |
| | | | | |
| Squirrel Springs Day Use Area | Parking, kiosk, picnic, restroom | State of Arizona T-21 | Yes | Completed 2001 |
| | | | | |
| Willow Springs Day Use Area | Boat/Courtesy Dock | State Lake Improvement Fund | Yes | Completed 2001 |
| | | | | |
| Rim Trail | Half mile paved trail | Forest Service Trail Funds | Yes | Completed 2001 |
| | | | | |
| Pintail Lake Trail | 1,400 feet paved trail | Forest Service Trail Funds | Yes | Completed 2001 |

# Roads

Road management is proceeding toward meeting forest plan objectives. Reconstruction occurred on 1.5 miles of road within developed recreation areas in FY 2000-2001. During FY 2000, 30 miles of road were decommissioned. Maintenance funds are not adequate to meet the needs of

the road system so disinvestment and loss of road quality occurs on many roads. The forests are instituiting a national Roads Analysis Process (RAP) protocol to prioritize transportation system planning.

# SOCIAL, ECONOMIC & ECOLOGICAL FOREST PLAN OBJECTIVES

The Forest Plan predicted that there would be essentially no different effect on local communities if one alternative was selected over another. This was predicted to be true if the area was considered as a whole. The Forests have found in implementing the plan that social / economic effects are evident at the project level as they impact specific users, businesses, or other forest users. However, when considered on a larger scale such as a county or forest-wide, the effects are as forecasted in the plan and differences are not detectable or at least are not significant.

The Forest Plan measured social / economic effects in many sectors. Those sectors dealing with production of commercial timber products or use of the forest for livestock grazing are not providing the positive economic and social effects anticipated by the plan. This has been largely due to the increasingly controversial nature of such activities as viewed by some segments of the U.S. population and evidenced by a substantial increase in the number of project analysis decision appeals and litigation. On the other hand the sectors that addressed recreational uses and wildlife and fish are believed to be meeting or exceeding plan predictions. These conditions are felt to be true based on respective resource use and development (recreation related) or the lack of anticipated use (timber harvest and grazing).

From an ecological aspect, current implementation of the plan is failing to meet the projected silvicultural treatments, due largely to the same controversy mentioned above. This is creating considerable concern regarding forest health. Also the intensified management anticipated by the plan to bring forage use in balance with capacity has not occurred to the extent necessary to adequately help resolve this balance. To address this issue, a supplemental monitoring report was completed in July, 2000, addressing the forest-wide grazing capacity of the Apache-Sitgreaves National Forests. This report adjusts the expected output of livestock grazing in the forest plan and reflects the numerous adjustments to individual grazing allotments made since 1995 to the present time. It also presents an estimate of the livestock capacity on the other allotments. The values contained in this supplemental report should only be considered on a forest wide basis and not for site-specific decisions concerning the grazing allotments. This report is included in its entirety in Appendix E.

# MONITORING REQUIREMENTS OF OTHER LAWS

I. **Clean Water Act (CWA)**

The Forest Plan calls for compliance with the "Federal Water Pollution Control Act" primarily through the implementation of Best Management Practices (BMPs). The Forest has been fulfilling this requirement in cooperation with the State of Arizona (AZ-DEQ) as part of the

Intergovernmental Agreement between the State and the Southwestern Region.

## II. **Clean Air Act (CAA)**

The Clean Air Act (CAA) and its amendments assign to the Federal Land Manager "the affirmative responsibility to protect the air quality-related values of Class I lands". The primary FLMP monitoring element of air resources is the tracking of visibility condition in Class I Wilderness areas. The Forest has fulfilled this responsibility by monitoring visibility in the Mt.Baldy airshed on a seasonal basis (6/1-10/1). Photos are qualitatively analyzed for general visibility conditions.

### A. Visibility Conditions Monitoring

Optical, Aerosol, and Meteorological Monitoring

Beginning in 1997, a partnership with Arizona Department of Environmental Quality Air Quality Division (ADEQ-AQD) was forged for a short-term (two year) visibility monitoring effort utilizing IMPROVE (Interagency Monitoring of Protected Visual Environments) protocol methods. This has been continued with methods to provide much greater and scientifically robust information to characterize the visibility conditions within Class I Wilderness Areas. Optical measurements are taken with a nephelometer while aerosol measurement are taken using an IMPROVE Sampler with Modules A and B. Some sites collect only optical measurements while others collect both types of data; all sites collect supporting meteorological information. A sampling site was established in Greer, AZ in February, 2000. Funding will be needed to maintain the network and meet the monitoring direction of the LMP and CAA. Specific information is available in the *Arizona Class I Area Visibility Monitoring 2001-2002 Operational Plan*, p. 11, dated May, 2002.

### B. Smoke Monitoring

To better manage resource management created smoke from prescribed fires, the White Mountain Smoke Management Group was formed in FY 2001. This cooperative program between the Apache-Sitgreaves National Forests, the White Mountain Apache Tribe, Bureau of Indian Affairs (BIA), and Tonto National Forest coordinates with the Arizona Department of Environmental Quality (AZ-DEQ) to assess, monitor, and minimize the amount of smoke entering the local airsheds. It also serves as a point of contact to local citizens receiving and responding to their questions, comments, and concerns at a toll free telephone number: 1-800-798-0534.

1. Remote Automated Weather Stations (RAWS)

A number of RAWS have been established to allow better monitoring and prediction of smoke transport and dispersion from Forest Service prescribed fire operations. The Apache-Sitgreaves NFs are maintaining sites and these stations were operational during FY 2000-2001 and will be maintained into the future. In addition, two nephelometers are in use, one located at the Show Low Fire Department, and one portable unit placed on-site during prescribed fire operations.

2. Direct Visual Smoke Monitoring

As part of the requirements for certain prescribed burns in Arizona, State air quality rules stipulate the monitoring of winds prior to ignition of a fire by releasing and tracking a pilot balloon. After ignition of a prescribed fire, certain size incidents require hourly monitoring and recording of smoke dispersion. The Apache-Sitgreaves NFs comply with both of these monitoring requirements on a routine basis. During FY 2000-2001, air flow has allowed smoke to settle at night into communities on several occasions. These events typically caused the postponing of further burning by the Forest Service until air conditions improved.

3. Compliance with National Ambient Air Quality Standards (NAAQS)

Although AZ-DEQ-AQD (Air Quality Division) maintains the network of actual NAAQS monitors throughout the State, the Apache-Sitgreaves NFs have no record of creating a violation of any NAAQS as a result of its operations. Monitoring of the effects of its operations is accomplished through the review of the AZ-DEQ-AWD monitoring data. We also maintain a laison position (Pete Lahm) at the AZ-DEQ offices in Phoenix to review and comment on the above requirements.

III. **Endangered Species Act**

Numerous consultations with the US Fish and Wildlife Service (F&WS) have occurred on each Ranger District. Monitoring activities normally result from each consultation. The Forests are complying with these actions or in some cases negotiating with the F&WS to determine the priority monitoring activities.

# EMERGING ISSUES & SOCIAL / RESOURCE TRENDS

## Grazing

The Forests are charged with complying with numerous environmental laws. In order to meet these requirements over the last six fiscal years, the Forests have accomplished NEPA allotment management analyses on 115 grazing allotments. The scope of these analyses encompasses over 1,647,981 million acres. Compliance with Federal law on this large acreage has resulted in some concerns on the part of users of the National Forest (primarily grazing permittees), because

livestock reductions will be needed to balance grazing capacity with resource management obligations on grazing allotments. These NEPA decisions point to the fact that additional or changing management is needed to protect watersheds and habitats for wildlife species.

Each decision incorporates a planned monitoring protocol to insure that the decisions implement the goals and objectives of the analysis.

In July, 2000, a supplemental monitoring report was completed addressing the forest-wide grazing capacity of the Apache-Sitgreaves National Forests. This report adjusts the expected output of livestock grazing in the forest plan and reflects the numerous adjustments to individual grazing allotments made since 1995 to the present time. It also presents an estimate of the livestock capacity on the other allotments. The values contained in this supplemental report should only be considered on a forest wide basis and not for site-specific decisions concerning the grazing allotments. This report is included in its entirety in Appendix E.

## Forest Health

The Apache-Sitgreaves NFs are experiencing increasing evidence of declining forest health. Stand densities have risen, fuel loads are continuing to increase, tree mortality is more common, and there is more incidence of insects and disease. Some of these effects are being addressed by the National Fire Plan (NFP) discussed in greater detail in the next section. Also local initiatives such as the Blue Ridge Demo Project (see Appendix F) are addressing this issue, as are several ecosystem assessments (Baca, Mineral, etc.), and as is a Pilot Forest proposal involving four National Forests in the Four Corners area including the A-S NFs.

## National Fire Plan (NFP) Hazardous Fuel Treatment Program

Due to several years of severe drought and a resultant series of intense and severe wildfires throughout the western United States including Arizona, Congress provided legislative relief to address the situation titled the National Fire Plan (NFP). This relief was in the form of increased funding to improve fire prevention and fire fighting capabilities, hazardous fuel reduction, especially in the wildland urban interface (WUI), improved rural community fire protection measures, and revitalization of wood utilization capabilities and wood industry infrastructure redevelopment. The planned Alpine, Heber-Overgaard, Pinetop-Lakeside, and Greer WUI Fuel Reduction Projects, as well as several similar projects, will help address this serious situation. In addition, a proactive financial grant program is redirecting the wood using industry to utilize small diameter trees and enhance community fire protection activities.

Two reports summarizing some of these NFP activities are included as Appendix G and H.

**Management Indicator Species (MIS)**

During the summer of 2001, members of the wildlife program staff on the Black Mesa Ranger District conducted FLMP monitoring surveys for songbirds along three road routes across that district. Work began on the survey project with the arrival of two very experienced birding volunteers on June 22, 2001 and was completed on July 20, 2001. This effort included monitoring of management indicator songbird species.

A report summarizing these monitoring activities and some initial findings is included as Appendix I.

# BARRIERS TO EFFECTIVE MONITORING AND EVALUATION

The barriers most often sited by Ranger District personnel to effective monitoring are the lack of adequate funding and time to conduct identified monitoring needs. Monitoring is being identified through project analysis, biological evaluation, and consultation, but it is simply more than can be accomplished with the existing work force and budgets.

Several monitoring items in the Forest's Monitoring Action Plan (MAP) are in need of modification. Changes should be made in the way some MAP items are applied to specific project monitoring efforts. Some monitoring questions and methodologies are not providing appropriate results. A frequently sited example remains the RO3 Wild model for estimating habitat capability indices (HCIs) on non-timber projects or projects of relatively small acreage.

Some monitoring activities require the participation of partners not only in data gathering, but also in sharing the cost of the monitoring. This is currently not occurring as much as is desirable.

# PLAN IMPLEMENTATION BUDGETS AND ACCOMPLISHMENT (Action Plan)

The Current Funding level does not equate to full Forest Plan implementation. The focus of funding available reflects the Chief's conservation priorities. As mentioned in the certification the forest plan, implementation is adequate and direction may only need slight adjustment to maintain adequate management.

# STATUS OF RECOMMENDATIONS

Recommendations of previous years monitoring reports have been adopted where possible. A forest plan amendment will be necessary to drop the GAWS and R03 Wild analyses from project study requirements.

# RESEARCH NEEDS

The following research was identified as needed, initiated, continuing, or has been completed on the Apache-Sitgreaves NFs. The needs were identified through our continuing monitoring efforts and will be used to address and guide future plan implementation efforts.

### Arizona Willow

Work on a Conservation Agreement for Arizona Willow was completed with the forests dedicating considerable effort to removing and reducing the identified threats to survival. This included cooperation with a Ph.D. candidate in developing a vegetative occupancy history of wetlands across the Mogollon Rim.

### Grazing Effects

The Rocky Mountain Station conducted research on the effects of ungulate grazing as it relates to riparian and fish resources within the West Fork Allotment on the Alpine Ranger District. This was identified as a need through monitoring activities and project analysis and the final report was completed in April, 2002.

### Water Erosion Prediction Program (WEPP)

The Water Erosion Prediction Program (WEPP) is replacing the Universal Soil Loss Equation (USLE). In order for WEPP to be used in forest analysis and monitoring it must be validated locally and regionally. Training on the use of WEPP will be completed during FY 2002.

### Goshawks

There have been several years of work done on the Forests concerning the reproductive success of Goshawks. This area of research needs to be continued.

### Management Indicator Species (MIS)

Region 3 is determining the needs for additional research regarding management indicator species (MIS).

# LIST OF PREPARERS

This report was compiled by the Ecosystem Group for Land Management Planning and Ranger District office personnel of the Apache-Sitgreaves National Forests. District Rangers and their primary staff officers and assistants had key roles in data acquisition, processing, and storage.

# LOCATIONS OF SUPPORTING DOCUMENTATION FOR MONITORING ACTIVITIES

The Ecostaff Group for Land Management Planning stores the data used to compile this report at the Supervisor's Office of the Apache-Sitgreaves National Forests. Supporting data used to develop the report data are stored at other Forest Service offices, ranger districts, other work units, and in some cases, national data storage facilities. The storage protocol is detailed in the Apache-Sitgreaves National Forests Monitoring Action Plans (MAP) as prepared and documented by each ranger district staff.

# MONITORING PARTNERSHIPS

Numerous partners are cooperating with the Forests in analyzing and monitoring the land management plan implementation projects. These partners include Federal and State agencies, forest users, local private citizens, special interest groups, and others. Most partners have specific interests and are very willing to participate. Timely, efficient, and unbiased data that is creditable to the general public is the desired result. Our efforts to date have provided improved understanding of resource / social / economic conditions, planned actions, and on the ground results.

The Forest has enlisted the Rocky Mountain Experiment Station to monitor the effects of grazing on watershed and wildlife species, primarily native fish. The station is developing for the forest a protocol for monitoring techniques which will enable the forests to better interact with the grazing users.

The Forests also have an on-going partnership with the Arizona Game & Fish Department and grazing permittees to monitor grazing utilization. This information is used in determining annual livestock management plans and in providing recommendations to the Arizona Game and Fish Department for big game harvest levels.

The Apache-Sitgreaves National Forests wish to thank all the countless volunteers and cooperators for their immense and tireless contribution to monitoring activities.

# APPENDICES

A. Vicinity Map -- Apache-Sitgreaves National Forests

B. A-S NFs LMP – Description of Amendments

C. Description of the Monitoring Action Plan (MAP) items

D. Final Project Report, vol. 1, Table of Contents and Executive Summary, West Fork Allotment Riparian Monitoring Study 1993-1999, USDA-FS, Rocky Mountain Research Station, RWU – 4302, Flagstaff, AZ

E. Supplemental Monitoring Report -- Forest-wide Grazing Capacity of the Apache-Sitgreaves National Forests

F. Blue Ridge Demo Project – Lakeside Ranger District

G. National Fire Plan (NFP) -- Hazardous Fuel Treatment Program – A-S NFs

H. National Fire Plan (NFP) -- Grant Program -- A-S NFs

I. Management Indicator Species (MIS) – Black Mesa Ranger District

J. National Visitor Use Monitoring Results

K. A-S NFs – Monitoring Spreadsheet